

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of Docket No: Q88366

Hiroshi HORIUCHI, et al.

Appln. No.: 10/537,493 Group Art Unit: 1794

Confirmation No.: 4639 Examiner: Hamid R. Badr

Filed: June 3, 2005

For: METHOD FOR PRODUCING FERMENTED MILK AND FERMENTED MILK

DECLARATION UNDER 37 C.F.R. § 1.132

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Hiroshi Horiuchi, hereby declare and state:

THAT I am a citizen of Japan;

THAT I received a master's degree from Kyushu University, Faculty of Agriculture
in March 1997;

THAT, I have been employed by MEIJI DAIRIES CORPORATION since April
1997, and assigned to Nishi Shunbetsu Plant to be engaged in manufacturing control of
cheese, cream, butter, skimmed milk powder, etc; and

THAT, in March 1998, I was transferred to Food Development Research Institute,
and since then, I have been engaged in development of yogurt.

In order to show unobviousness and unexpected effects of the claimed subject matter
of the above-identified application over references cited in the Office Actions (i.e., Castberg

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et al. (US 5,453,256, "R1"), the following experiments were performed by me or under my supervision.

The following Additional Experiment according to the present invention (substitution with nitrogen) was conducted in order to show the unexpected effects of the invention in commensurate with the scope of the claimed subject matter.

Additional Experiment According to the Present Invention (substitution with nitrogen)

A mix was prepared by mixing 78.2 kg of milk, 2.6 kg of powdery skim milk, and 17.2 kg of water. The mix was sterilized under heating at 95°C for 5 minutes, and cooled to 37°C. Subsequently, a lactic acid starter (a mix culture of *Lactobacillus bulgaricus* (*L. bulgaricus* JCM 1002T) and *Streptococcus thermophilus* (*S. thermophilus* AYCC 19258)) was inoculated at 2% by weight. Nitrogen gas was mixed and dispersed into the mix through a pipe, to adjust a dissolved oxygen concentration to about 2 ppm. Then, the mix was packed into a 100-ml container, for static fermentation in fermentation chamber at 37°C, until the lactic acid acidity reached around 0.7%. Just then, the resulting product was put in a refrigerator at 10°C or less, for cooling and termination of fermentation to prepare fermented milk. In this regard, the lactic acid acidity was calculated by the titration with 0.1 N NaOH by using phenolphthalein as an indicator.

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Additional Comparative Experiment (substitution with carbon dioxide)

Additional Comparative Experiment was conducted in the same manner as in Additional Experiment according to the present invention described above, except that carbon dioxide was used instead of nitrogen. The dissolved oxygen concentration was adjusted to about 2 ppm, also as in Additional Example of the present invention.

In this regard, I would like to note that the start culture used in this Comparative Experiment is not identical to that used in Example IV of RI. This is because I believe that this Comparative Experiment conditions are closer to the conditions of the above Additional Experiment according to the present invention and thus is more suitable for comparison for proving unexpected results of the present invention.

Results

(1) Fermentation time (time required to reach lactic acid acidity of 0.7%)

Additional Experiment according to the present invention : 170 min (pH at the start of fermentation = 6.53, acidity = 0.19%)

Additional Comparative Experiment: 170 min (pH at the start of fermentation = 6.07, acidity = 0.30%)

At the finish of fermentation, pH was 4.80 and acidity was 0.70% in each of Additional Experiment according to the present invention and Additional Comparative Experiment.

(2) Curd tension (standard of hardness)

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Additional Experiment according to the present invention : 50.0 g

Additional Comparative Experiment: 48.5 g

(3) Penetration angle of curd knife (standard of smoothness)

Additional Experiment according to the present invention: 27°

Additional Comparative Experiment: 55°

As shown by the above data, when substitution with carbon dioxide was conducted as in Additional Comparative Experiment, it was not possible to produce fermented milk having sufficient smoothness.

(4) Organoleptic assessment

Smoothness of the fermented milk of the Additional Experiment according to the present invention was more excellent than that of the fermented milk of Additional Comparative Experiment.

In addition, it was confirmed that the fermented milk of Additional Comparative Experiment gave a tartish taste which is considered to be derived from carbonic acid.

From the results obtained and compared above, I believe that the method for producing fermented milk and thus produced fermented milk, defined in the claims of the instant application, show unexpected results.

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I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: June 15, 2009

Hiroshi Horiuchi
Mr. Hiroshi Horiuchi